

October 12, 1983

PROPOSAL FOR RESEARCH
MONROE INSTITUTE OF APPLIED SCIENCES

Prepared for:
Private Client

The following individuals are authorized to conduct negotiations
on behalf of the Monroe Institute of Applied Sciences:

Technical Matters: Mr. Robert A. Monroe, President
(804) 361-1252

Contractual Matters: Mr. Robert A. Monroe, President
(804) 361-1252

Proposal Expires on: December 30, 1983

MONROE INSTITUTE OF APPLIED SCIENCES
ROUTE 1, BOX 175, FABER, VA 22938

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INTRODUCTION

The Monroe Institute of Applied Sciences (M.I.A.S.) is pleased to submit the enclosed unsolicited proposal #001, designed to provide specialized methods of selecting singularly talented people from large pools of personnel for performance of varying tasks within an Advanced Human Potentials (AHP) environment.

To accomplish the proposed program, M.I.A.S. will provide the facilities, materials, staffing, and consultant(s) to perform appropriate research and development totally separated from the sponsor's environment. The collection of raw data, its analysis and subsequent findings will be targeted at establishing specifically identifiable parameters which can be utilized to select individuals of AHP talent from larger groups on a recurring basis. These parameters will be established through development of replicable use of nonintrusive biomonitoring techniques. Details of deliverables are contained within the following sections of this document.

STATEMENT OF WORK

1. GENERAL:

The overall objective of this effort is to determine baseline nonintrusive biomonitoring effects measured from personnel who are known to possess a displayed AHP capability. This will be accomplished by observing participants in M.I.A.S. programs who display AHP capability and then testing that capability on a one-to-one basis within controlled laboratory conditions.

2. MAJOR GOALS:

PHASE I: Determine specific AHP, which when displayed will establish credibility of subject for measurement.

PHASE II: Test identified subjects against their displayed capabilities under laboratory conditions, by applying them against identical but scientifically controlled criteria. This will be done with subject's prior consent to provide such information for sole use within a research data base.

PHASE III: When sufficient data has been collected; analyze that data, identify and list the specific recurring elements which will allow nonintrusive biomonitoring in the selection of like personnel from a non-selective group.

PHASE IV: Provide an overall evaluation of the above three Phases of effort with recommendations for implementation of selection criteria.

3. SPECIFIC TASKS:

a. Modify current wiring capacities within the M.I.A.S. main seminar building to provide necessary circuitry in support of minimal nonintrusive biomonitoring response requirements.

b. Modify equipment now installed within the M.I.A.S. laboratory facility, to include equipment additions, to permit one-on-one evaluations of selected personnel in a more detailed nonintrusive biomonitoring evaluation.

c. Design scientifically acceptable AHP test criteria for use during normal M.I.A.S. activities, by which valid capabilities can be identified.

d. Apply identical test criteria as specified in paragraph c. above under laboratory conditions and save all biomonitoring data for later use in analysis.

e. Once sufficient data has been accumulated; perform a thorough analysis of data in order to single out specific and replicable nonintrusive biomonitoring indications which will identify likely personnel as candidates for AHP performance.

f. Develop a specific group of parameters or windows for nonintrusive biomonitoring affects which can be applied against a given non-select group of personnel.

g. Apply the developed selection criteria and test individuals who meet the selected parameters against those test criteria as identified through the evaluation processes discussed paragraph c. above.

h. Provide an overall evaluation of the feasibility of using such a selection criteria against large groups.

i. Provide a formal report of findings and techniques developed through the above procedures.

4. SECURITY:

The above will be accomplished as a normal course of events within the Research and Development portion of M.I.A.S. activities. Personnel identified through participation in M.I.A.S. activities will be utilized in collection of data base information only, and on a voluntary basis; and their identifying personal data will not be stored as part of that data base.

5. DELIVERABLES:

a. State-of-the-Art information on use of Nonintrusive Biomonitoring techniques in selection of personnel.

b. A progress report (one copy) - a written evaluation of findings at the end of Phases 2 & 3.

c. A final report (one copy) - a written final report of evaluation/recommendations on the use of Nonintrusive Biomonitoring and its use in selection of personnel for AHP performance and/or training.

d. The final report will include a summary of experiments performed in each Phase and an evaluation of each of those experiments. The report will provide a prioritized list of identified parameters, how they are obtained, and specific equipment and methodology to be utilized.

6. ACCESS TO MATERIAL:

Reasonable access to raw data material will be made to contractor personnel to insure a full understanding of statistical, or collection methodology utilized during evaluation, research and development.

7. SPECIAL REQUIREMENTS:

The above experimentation on human subjects will only be conducted or undertaken with the informed consent of the subject, in accordance with guidelines issued by the Department of Health and Human Services, setting out conditions that safeguard the welfare of such subjects.

Proposal for Research

October 12, 1983

1. ESTIMATED TIME AND CHARGES: The estimated time required to complete this research effort and report on its results is 12 months from final necessary equipment modification date.

Enclosed is a detailed cost estimate and support schedule.

2. CERTIFICATION: The Monroe Institute of Applied Sciences (M.I.A.S.) has not delivered, nor is it obligated to deliver to the government under any other contract or subcontract, the same data herein proposed.

3. SECURITY:

a. The following M.I.A.S. personnel are cleared through the U.S. Army Personnel Clearance Facility (PCF) at Fort George G. Meade, Maryland:

<u>Name</u>	<u>Current Clearance</u>	<u>Date Granted</u>
Robert A. Monroe (President M.I.A.S.)	SECRET	

b. In addition a formal request for personnel security clearance has been submitted on another M.I.A.S. employee:

Nancy L. Honeycutt,
(Special Assistant to the President, M.I.A.S.)

c. There are no special security requirements necessary in reference to consolidated or assembled data, general in nature, which will be collected over the contract period. The final product report(s) which provide the government with the deliverables specified within this proposal will only be written or handled by the above cleared personnel and no copies of the above reports will be maintained once these deliverable requirements are met. Classified material which in a rare case might be generated will be stored and maintained, once marked, within the office of the governmental agency or office acting as contract monitor. All professional work will be accomplished primarily within the M.I.A.S. laboratory facility which is not accessible by the general public. This laboratory is located in an isolated valley presently known as Roberts Mountain Farm, in Faber, Virginia 22938.

d. The only personnel within M.I.A.S. who shall be made knowledgable of the above contractual obligation or the direct connection to the Federal Government or its Contracting Agency will be; Mr. Robert A. Monroe, President M.I.A.S.; and Ms. Nancy L. Honeycutt, Assistant to the President, M.I.A.S.

4. NEGOTIATIONS: The following individual can contractually bind M.I.A.S.:

Robert A. Monroe
President
Monroe Institute of Applied Sciences

The above person can be contacted at:

Route #1, Box 175
Faber, Virginia 22938
Phone: (804) 361-1252

5. PROPOSAL VALIDITY PERIOD: This proposal will remain valid until December 30, 1983. M.I.A.S. will consider a time extension if requested prior to that date.

ESTIMATE OF COSTS

Personnel

Supervisory	52 hrs @ \$45.00	\$ 2,340.00
Senior Professional	1248 hrs @ \$25.00	31,200.00
Professional	1750 hrs @ \$12.00	21,000.00
Clerical	1200 hrs @ \$11.00	13,200.00

M.I.A.S. Total Labor:	\$67,740.00
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Staff Benefits at 35%:	23,699.00
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Total Labor and Staff Benefits:	\$91,439.00
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<u>Overhead for Research</u> @ 85% of Labor and Benefits:	77,723.15
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General & Administrative Expense

@ 25% of Labor and Benefits:	22,859.75
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Support Costs

Travel and Subsistence	\$ 4,000.00
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Communications	500.00
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Materials & Supplies	1,300.00
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Equipment Modification(s) (See Enclosed documentation)	60,000.00
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Total Support Costs:	\$65,800.00
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Total Estimated Costs:	\$257,821.90
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ENCLOSURE I

DIRECT LABOR COSTS

Direct labor charges are based on the salaries for the staff members expected to do the project work. These estimates include a judgemental percentage added to current base to permit merit increases and soften any inflationary impact during the proposed period of the contract.

ENCLOSURE II

INDIRECT RATES

There are no indirect rates figured into this proposal for contract. Planned and unplanned increases in social security taxes or other employee benefits; which may include, vacations, holidays, sick leave pay or contributions to benefit plans will be born as necessary by M.I.A.S.

ENCLOSURE III

SUPPORT COSTS

a. Air fares are based on the current issue of the Official Airline Guide Quick Reference. Subsistence is based on data provided by American Express, actual cost experience, and the most recent General Services Administration cost of travel information. Surface travel is based on an average of \$36.00 per day for car rental or taxi, parking, fees, tolls, etc. The mileage rate applied for peronnal auto expenses is currently established at \$0.225 per mile driven.

b. Report costs are based on the number of pages of text and illustrations and copies required for overall project effort.

c. Communications cost estimates are based on M.I.A.S. experience for support to research operations and include costs of telephone tolls and wire messages. Communications estimates also include cost of transportation of materials and/or equipment, postage, parcel post, wrapping, packaging of technical reports.

ROBERT ALLEN MONROE

Mr. Monroe is a man of many talents. More important, he has the ability to explore and experience these different facets that make up an unusual personality.

The son of a college professor and medical doctor mother, he received his degree from Ohio State University after studies in engineering and journalism, and entered the radio broadcasting industry as a writer and director of programs. He went to New York in 1939, where he was the creator and producer of some 400 radio and TV network programs in the ensuing twenty year period. In addition to directing and writing, he composed all of the orchestral music for his programs, much of which is still in use in television and motion pictures.

After an early sojourn at Donohue and Coe, Advertising, he formed Robert Monroe Productions, which at its peak operation, was producing as many as 28 network shows weekly. He later became Vice President of Programs and director of Mutual Broadcasting System, Inc., a position he held until mid 1956. He then became President of Laury Associates, which brought him into ownership and operation of radio stations in North Carolina and Virginia. He also formed Jefferson Cable Corporation, which as President, he guided in the construction and operation of cable-TV systems in Charlottesville and Waynesboro, Virginia - a position he held until April, 1976.

Mr. Monroe's major avocation in recent years has been exploration and research into practical methods of accelerated learning through expanded forms of consciousness. To augment such activity, he founded the Monroe Institute of Applied Sciences in 1973, with facilities and laboratories at Afton, Virginia. With his long and varied experience in sound, it was natural that he utilized this medium for investigation. One of the results of his work was a method and technique of inducing relaxation and sleep, which was granted a generic patent in 1975. The technique employs a system of audio pulses which create a frequency following response in the human brain. By this method, it is now possible to hold and maintain specific stages of sleep for any depth and duration in the average person. A later development at the Institute has utilized the same method and technique in a form of "binaural beats" to create synchronization of both left and right hemispheres in the human brain. This discovery also permits external control of the

degree of activity in either right or left brain. These two patterns, when employed in an ordered sequence to achieve specific effects, offer a significant gateway to new understanding and application of human thought and endeavor. Along with others, the Monroe Institute is exploring the potentials of such methods in all areas of individual and cultural activity. Mr. Monroe has most recently been involved in development of Fast Acquisition Skills Training (FAST) in support of Broadcasters Training at the Defense Information School (DINFOS).

Mr. Monroe, as Executive Director of the Institute he founded, still plays a direct and active part in this educational-research organization. He also is author of the book, "JOURNEYS OUT OF THE BODY" (Doubleday), which has been published in five languages world-wide. With his family, he lives on his farm in Nelson County, Virginia, near the Institute Headquarters.

Monroe Institute of Applied Sciences

Rt. 1 Box 175
Faber, VA 22938
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The Institute had its beginning in the Research and Development Division of Monroe Industries, Inc., which at the time (1958) was investigating methods and techniques of accelerated learning through practical environmental changes. As a result of certain findings, the decision was made to broaden the base of such investigations and to alter the purpose of any such research effort. In 1971, the Institute was created to conform with and expand this different approach.

Stated simply, the Institute holds to the concept that (1): Consciousness and the focusing thereof contain any and all solutions to the life processes that man desires or encounters. (2): Greater understanding and appreciation of such consciousness can be achieved only through inter-disciplinary approaches and co-ordination; (3): The results of related research effort are meaningful only if reduced to practical application, to "Something of Value" within the context of the contemporary culture or era.

HISTORY

Two points of reference need to be clarified in this, the opening portion. First, the following report is not presented within the restrictive confines of a single avenue of study or practice. It is an attempt to place in broadly comprehensive terms the basic developments at the Institute so that each individual may relate it to his own area of interest without need for "translation".

Second, the summary of study and research contained herein is not conventional in its approach. There are no statistical tables, graphs, or references to the works of others in the field. The efforts of the Institute have not been designed or performed with the intent of offering proof or documentation to the scientific community or the world at large, although much of orthodox scientific method has been utilized. Instead, such can well be the goal of other organizations and individuals who may take the basic findings of the Institute to prove and present them in other forms, in other areas of specialization. The Institute welcomes this participation.

As stated above, the early goals were defined as the development of learning methods and techniques through practical environmental changes i.e., changes that could be put into use simply and easily under typical societal conditions. This immediately precluded any exotic approaches such as chemical, drug, or dietary stimulation. Also, to be widely acceptable, the use of sophisticated and expensive instrumentation could not be of vital necessity. Moreover, the need became apparent to go beyond the current modes and theories of learning to reach a baseline that might be all-encompassing. The purpose was to produce something effective in a new form, rather than an extension or expansion of traditional practices that were declining steadily in acceptable results each year.

Type I Learning - Utilizing a freedom from conventionality, studies were made into all forms of the learning process in daily life activities. In moving beyond the Skinnerian pattern, the key factor in learning appeared to be, first of all, the focusing of attention. Pain or pleasure focused attention to the experience, and the experience was then learned/stored. Further, any factor of emotion focused attention, again causing the experience to be imprinted heavily. Any extreme physical experience also focused attention on the experience with similar results. The depth of learning (retention-recall) appeared to be in direct relation to the intensity of experience. Conversely, the more shallow the experience, the lesser the attention seemed valid, which diminished greatly the learning process. Any other "un-natural" learning such as willful focusing of attention without stimulus required a form of dedication and discipline generally unavailable to the average human mind. Attention flickers and fluctuates also in low-order repetitive experience, denigrating again learning that might take place.

The premise: (Natural) learning is triggered by attention focused by experience which contains elements of emotion, pain-pleasure, physical action, newness in various combinations. Therefore: natural learning is experience: the greater the depth of the experience, the greater the imprint of learning. This is labeled Type I Learning.

A simple validation of the premise can be achieved by no more than sitting down and writing out a list of the ten most significant information events you have learned to date, in the order of the clarity of detail and your ability to recall. Having done this, note how many of the ten represent those items you have learned through formal training.

The question was: how to put this natural learning process into a synthesis that could be applied broadly and readily.

Type II Learning - Another learning process, the most conventional and widely in use, is indeed deliberate and willful, and approaches a Pavlovian conditioning pattern in its habituation, to be truly successful. The reading and re-reading of a textbook, the physical co-ordination of an athlete, the skill of a concert pianist, all are forms of Type II Learning - and require a special pre-learned form of focus of attention (which may be triggered by a previous "natural" learning experience which may or may not be in conscious recall). From this basic rote process, "un-natural", as it were, combinations thereof are assembled to form deductive simulations akin to natural learning experience.

Type III Learning - Another pattern which is present and affects the individual, yet for the most part is usually not within his conscious recall, lies in two (or more) areas of experience.

The first takes place in non-conscious retention of experience which is perceived and stored during his waking physical life activity. All five physical senses perceive information, only a small portion (less than 20%) of which is ordinarily available to the conscious mind. Yet such information is stored in memory in the most minute detail. It is not a

part of the average consciousness because there is no focus of attention on the experience at that particular moment. This has been illustrated in many forms, such as the recall of the content of a conversation between others while the focus of attention was in another direction, or the remembering of a musical selection while reading a book.

The second form of learning is by the experience of the non-conscious self - the dream experience which may or may not be in conscious recall. The dream material itself may be a new experience created out of the previously learned experiences, and in turn is treated by the learning process as a learning experience no less real or important than any other. An individual who previously has had no fear of snakes, dreams that he is wading in a creek, is bitten by a snake and becomes seriously ill. Thereafter, he is afraid of snakes, and quite possibly is afraid of wading in creeks - though the entire dream experience is not a part of his conscious memory.

The important facet in Type III Learning is that such learning experience is indeed a part of non-conscious memory, which does not have the basic ability to evaluate the experience within a relative context. Yet, it is experiential, often emotional learning, and thus acts upon the individual personality with the same strength as Type I Learning - without conscious awareness of the individual.

It was herein, Type III Learning, that held the most hopeful promise of achievement of the original purpose.

Preliminary Results - It soon became obvious that experiments in Type III Learning were not at all an original approach. Much of it had taken place through the years under various labels - suggestion, hypnosis, psycho-synthesis, placebo effect, motivational research, plus several hundred philosophical variations. The problem thus was to sort out the catalytic factor in as many of these as possible, and apply them in some rational and repeatable scientific model.

With this came an important change in identification of exactly what this was that had been under investigation. What attention was being focused? What was undergoing the experience? Unhappy with the term "human being" (the process might apply to animals also), personality or individualism being the result, and "awareness" offering insufficient connotation, we settled reluctantly upon Consciousness. Reluctance was there because it still seemed inadequate, vague, mis-used, and over-used but it was the best to be had at the time.

With this hurdle cleared hopefully, and shortened to CS through impatience, CS (Consciousness) became the target of intensive and unorthodox patterns of research. If CS could be extended into Type II learning, and focused therein, much might be achieved.

By luck or intuition, the project aimed immediately at the most obvious yet natural edge of CS - the release and dispersion of CS at the onset of and during sleep. The simple process of extended wakefulness did not produce any worthwhile patterns, i.e., delaying the loss of CS without qualitative changes of what appeared to be a declining efficiency. Therefore, a means was sought to maintain the quality of CS as the physiological system converted into the sleep state. This included the problem of how to make peace with the homeostatic network, which resists or feels "threatened" by any change - and change had to be the key to any process to be designed and developed.

Discovery - Very little was achieved in the early effort except to verify many earlier studies on sleep. Some 52 subjects were tested in various sleep states without any significant new information brought into view. The first and basic breakthrough took place inadvertently, through necessity. The project team, for the most part volunteers, found it difficult to find time to travel from home to home with equipment and instrumentation to measure sleep states of various subjects. The project did not have adequate facilities to house subjects for the night. Also, subjects found it very difficult to go to sleep upon request. If they did, it was usually in a near-exhausted state which negated anything other than delta sleep, a near-comatose unresponsive state (at that period).

To solve the problem, so that subjects would be able to go quickly into sleep when needed, various methods were tried. Environments were set up most conducive to sleep, including control of temperature, humidity, light and sound - which were only partially successful. Light stimulation was tried, - but seemed to bring discomfort rather than relaxation. A combination of audio signals showed promise. Additional investigation proved the solution.

It was discovered that phased sine waves at discernable sound frequencies, when blended to create "beat" frequencies within the ranges of electrical brain waves found at the various stages of human sleep, will create a Frequency Following Response (FFR) within the EEG pattern of the individual listening to such audio waveforms. The FFR in turn evokes physiological and mental states in direct relationship to the original stimulus.

With the availability of this new tool, progress was immediate and continuous. For the first time, it became possible to develop and hold the subject into any of the various stages of sleep, from light alpha relaxation through theta into delta and in REM (dreaming). A generic patent on the method and technique was granted to the originator, Robert Monroe, for whom the Institute is named.

The Monroe method and techniques were found to be able to "program" sleep cycles throughout the night of sleep, if so desired. Variations could bring adjustment of the duration of each stage of sleep during the cycle, according to the needs and desires of the individual. The

waking-from-sleep moment was enhanced greatly over the traditional alarm clock which had no cognizance of the stage of sleep it was invading. By programming the FFR up into REM sleep for the few minutes before wake-up time, then inserting a beta signal, the sleeper was roused gently yet firmly, without startling shock or dull sleep "hangover".

In one multiple test, under medical supervision, some 45 insomniacs were given a month of nightly repeating FFR tape recordings in their own home environments. For such purpose, an insomniac was defined as an individual who could not sleep at night without prescribed medication. At the end of the month, 40 of the 45 patients reported the system to be at least as effective as their medication, and obviously without drug after effects. In some cases, an entrainment factor lasted as long as six months, whereby the patient had only to think of the sound pattern and was able to achieve sleep.

Initially, the method has been released for general use as a cassette tape, which is effective in monaural form. For maximum results, it can be utilized in stereo with headphones in the same cassette configuration. A prototype of a new unit with micro-electronic circuitry is now under test whereby an entire multiple-cycle sleep period can be "programmed", including a special wake-up sequence that goes into operation five minutes prior to a pre-set time. These are in keeping with the premise of "Something of Value" evolving from any research effort.

Interim Progress - With the ability to control borderland sleep states, exploration of various stages of sleep continued as rapidly as limited time, funds, personnel and subjects would permit - a pace that turned into months and years. The goal was to move CS into sleep patterns and still maintain CS as it is understood in the waking state.

Slowly, it became obvious that this could not be achieved, but not for the expected reason. As each subject logged greater number of experimental sessions, CS in and of itself became enhanced rather than restricted. Not only was the subject-participant able to ease through the normal diminution of physical sensory input in sleep, without loss of CS, he discovered first, that CS was not dependent upon those same physical sensory signals. Second, he discovered that CS as he understood it became greater in its capacity without the heavy physical sensory data presenting strong interference and distortion.

The knowing (conviction?) through experience that thinking, cognition, self, personality, and any other components of consciousness are not dependent upon physical sensory signals was in itself a most profound learning process to most participating subjects.

In a social structure bound heavily to causal relationships through matter-time-space, the acceptance of such as valid through personal experience was indeed profound, disturbing, and extremely stimulating to both staff and participants. It was truly a suspected Pandora's Box that offered unexpected potentials in an aspect that had pre-occupied

man since his early beginnings. Could the Box be opened slowly, a little at a time, so as to avoid being overwhelmed? Or would the additional studies show this paradoxical state of sleep-awake be that and no more.

At this point, a member of the research team recommended that the beat frequency patterns be applied binaurally, i.e., that one set of signals be inserted into one ear, another in the other ear. In open air, extremely low frequency brain wave patterns (30HZ-1.5HZ) were below audio perception levels, thus, the pattern was expressed in amplitude rather than actual frequency of the sound itself. The effect of binaural insertion implied a possible synthesis of the beat frequency by the brain itself. A 200HZ signal in one ear and a 210HZ signal in the other could suggest to the brain an effective 10HZ resonance.

The results were spectacular. A quantum jump in the entire process became evident. Time of response shortened, duration extended, degree of intensity was dramatic, all in the FFR patterns shown in EEG traces. Even among some 22 previous and well-indoctrinated subjects, greatly increased effectiveness was the rule.

The period that followed was one of exploration of response to audio frequencies above EEG ranges, and often beyond normal hearing frequencies. The search was aimed at the determination of other effective audio frequencies, whatever such effect might be. The process was a tedious one, as only a slow sweep tests permitted the FFR to appear, due to the time-delay in response and the reporting of the volunteer subject. Moreover, to be acceptable as to the nature of the response, a double-blind consensus of subjects was a part of the criteria. Thus, to be significant, a response reported by one subject was withheld from other subjects unless and/or until each reported a similar response within the same frequency range. The factor of suggestion was then eliminated, and recordings of subject response both verbal and through instrumentation were used for evaluation.

A number of definite, repeatable responses were found. Attention could be varied from non-conscious delta sleep of total lack of CS and comatose physical state up through intense Beta-type concentration of one pointed fixation, and into high-anxiety intolerable "nervousness". However, much depended upon the sequence of the signals offered. For example, an extremely "clear" form of mentation was obtained by first aiding the subject to achieve Mind Awake-Body Asleep (arbitrarily identified as Focus 10) through one set of signal stimulation, then applying a second, overlapping signal that would normally be too "nerve-racking". It is still not thoroughly understood why most of such sequencing is important.

With the advent of a wide interest in brain-hemispheric theory and study, the Institute undertook to explore the bi-lateral effects of FFR. It was found very quickly that extreme disorientation could be produced temporarily by inserting different, unrelated signals in each ear. Moving more cautiously, a "de-tuning" of either hemisphere was possible by the insertion of low EEG range frequencies in the opposite ear. Con-

versely, either hemisphere could be stimulated by the same method, by application of specific Beta sound patterns and beyond. The natural outcome of this was to seek patterns which would "balance" or adjust the relationships between the left and right brain, and help produce desired changes in behavior.

The above has produced dynamic results in many areas, and still is in a stage of infancy as to the "state of the art". However, this did lead to the definition of the basic effect with which the Institute effort is dealing. Several years after the beginning of the "binaural beat" studies, an associate researcher brought it to the attention of the Institute. Utilizing the Institute FFR process in the binaural mode, he set up a bi-lateral EEG on a volunteer subject whereby the dominant wave form of each brain hemisphere was displayed on a dual-trace oscilloscope.

Binaural beat-frequency stimulation creates a sustaining FFR that is synchronous in both amplitude and frequency between the brain hemispheres.

The total meaning of such coherency is not understood as no extended studies have been made except those begun by the Institute. Prior to the development of the FFR method, no efficient technique was available to generate an hemi-sync state. It may be true that those in a focused, relaxed state in prayer, meditation, or similar physically-quiet states may produce periods of such synchronization. One test of a Zen master with twenty years of contemplative study indicated he was able to produce the effects for long periods. Certainly, it must occur naturally if only momentarily under certain specific conditions in human life. Exactly what these are is not yet known.

There is a partial entrainment effect, and there are indications that it can be learned much as in the bio-feedback model. Whether the synthesized signal crosses the Corpus Callosum (the nerve network between the brain hemispheres), travels through the brain stem, limbic system - this has yet to be determined. It appears that new neural pathways are established as a result.

Work with the Monroe system and the brain hemispheric synchronization-coherence has brought forth a number of interesting prospects. Some of these are:

1. Balanced Health: The first and prime effect has been a stabilization of the mental and physical energies of the participant. This usually appears between the 10th and 11th session, each 45 minutes in length. Most report dynamic changes in physical vitality, more restful sleep, a greater sense of well-being, a general serenity, new enthusiasm for living, and release from false identities and obligations, to name a few. Generally, each begins with the statement "I feel better, I seem to think more clearly". After the 10th exposure, the change is often permanent. Participants so report this some two and three years

after the experiments.

2. Stress-Tension Reduction: Used principally in cases that have resisted conventional approaches, results derived appear to be caused chiefly by a change in the overview of the individual, rather than dealing with specifics.

3. Surgical Support: Applied before, during and after surgery. When used in its entirety, this special system helps the patient in reduction of anxieties, control of life energies, reduction of pain, and acceleration of natural body healing. Patients consistently report major gains in all of these areas.

4. Control of Pain: It is not yet clear why the method is as effective as indicated. The suggestion for control of chronic pain would appear to be quite insufficient to provide the dynamic changes reported again and again. As little as one week of work with the tapes has often been sufficient. There is some speculation that it is related to the effect noted in (1) above.

5. Stroke Recovery: Although very little has been done with the Monroe System in this area, the preliminary findings bear reporting. The synchronization of the hemispheres of two participants shortly after the onset of minor strokes, each produced definite improvement in the disfunction. In one case, the subject had suffered minor speech difficulty and intermittent motor instability in his legs. After three hemi-sync sessions, his speech had cleared considerably, and he was able to walk steadily without effort. Three months later, there had been no retrogression that could be observed.

6. Psycho-therapy: When applied in the interview setting, the hemi-sync mode appears to help the patient reach very quickly long-submerged levels which have resisted penetration by most traditional means. It has been stated that 10 interviews using the system may be the equivalent of 10 years of orthodox treatment.

7. Problem Solving: The coherent brain-mind focused in a given area by specific FFR patterns apparently has a far greater capacity to view any condition from a holistic position than "normal" consciousness. It can be speculated that it is the result of simple utilization of complete inter-action between brain hemispheres. In a demonstration with a group of forty-five executives of a major corporation, participants were asked to seek the best answer they could for his own individual problem, while experiencing hemi-sync. Thirty reported decision-solutions of a quality for the most part unexpected. Each was sure it was the "right" answer.

8. Accelerated Learning: The pure synchronization effect alone offers many potentials in Type II and Type III by the simple provision of focusing of attention. For example, its use by students while studying enhances retention and recall: One college student was able to raise her college grades from a 2.5 to 3.9 average in one quarter, using the method. Another test showed an ability to perceive and remember oral information at a rate of 1,000 words per minute. (A speech compressor was used to create the material). Another participant was able to multiply two eight-digit numbers mentally, with 100% accuracy; without the hemi-sync effect, he had difficulty with sets of two digit numbers. Multiplication tables from 13 to 24 were used as rote material, with 60% accuracy in recall after one session.

Under the same conditions, mental-physical co-ordination activities were simulated with a form of guided imagery. Particular tests were performed chiefly in sports where any changes could be measured. The most indicative of these took place where six golfers all reduced their scores by as much as five strokes. The implication that the method could be employed in more constructive directions and in many forms appears to be limited only by the need.

9. Creative Stimulus: A well-known training authority stated that over 30,000 engineers on the company payroll, savings and/or profits could be increased by some \$200,000,000 if this employee group added 2% to their creative ability. Response in this area from the Monroe System has been so consistent that perhaps one day the Institute will be able to conduct such an extensive study as this. Tests already performed with a small and diverse engineering group some eleven in number have shown a probability to surpass easily such percentile. Several in the group have developed new designs in their respective fields which were interesting enough to warrant patent application.

One participant in another Institute program became inspired to write a book, completed it and sold it to a publisher within six weeks. A second became proficient and prominent as a commercial artist, a third turned musical composer and arranger. Several hundred have come forth with new ideas, methods, concepts and viewpoints that have brought major changes in their life styles. The value of the latter can be assessed only by the individual at first, and subsequently by those around him.

The following is a portion of a report from one Institute research associate, psychiatrist Stuart Twemlow:

"In our studies of the effect of the Monroe Tape system on brain waves, we have found that the tapes encourage the focusing of brain energy (it can be measured as with a light bulb, in watts) into a narrower and narrower "frequency band". This focusing of energy is not unlike the yoga concept of one pointedness, which we may translate in Western terms as single-mindedness. As Focus 10 counts down, there is a gradual increase in brain-wave size, which is a measure of brain energy or power.

Although the significance of this is not yet clear, it could be speculated that the tape system encourages the recruitment of neurons in the brain to focus their attention on a single task, thus perhaps increasing the efficiency of mastering a task, whether that be to reduce tension on the muscles, to improve sleeping, or control pain".

"I'll describe three situations where we have applied the Monroe tapes with unusually striking results. The types of patients with whom the tapes have been tried, generally speaking, have been chronic that is, have had their problem for long periods of time".

"One such case was a middle-aged lady who had severe pain resulting from problems in the healing of an old fracture. In combining the tapes with a structured hospital milieu, we determined that as she began to relax the parts of her body which had not relaxed, were those pains connected with psychological problems for which the pain was serving the function of "secondary gains". That is, the pain appeared to help her cope with some of the psychological stresses in her everyday life in a sense was kept going because it served this adaptive function".

"As we were able to deal with this, she began to feel in control of her life and her need to keep the pain decreased. After discharge from the hospital, this patient has continued to be almost unrecognizable physically. She looks a great deal younger than she did before, she has her pain under control and does not need any physical support for it. Most strikingly, other parts of her life from which she had been very withdrawn, have now become a source of gratification to her".

"The next case concerns a middle-aged man with a very long history of psychosomatic problems affecting practically every organ in his body. A psychological investigation found many of these symptoms related to some severe surgical trauma which occurred when he was a young child. In this case, we combined the tape exercises, especially the Focus 10 exercise with the sorts of stimuli in his environment that would make him very anxious, that is, the stimuli that reminded him of the surgical trauma as a child. Over a period of weeks we exposed him both to the Focus 10 deeply relaxed state and to the stimuli that would make him very anxious and upset. Gradually, he became desensitized to the stimuli and was able to feel a lot more in control of his life".

"A dying man utilized the tape system. He also had severe pain which had been impossible to control with massive doses of narcotic. Over a period of weeks, he also achieved control. Since he died, we've had a communication from his wife. She stated that he played the tapes until he died and the last week of his life, was completely pain free and at peace".

"Our feeling was that both the experience with achieving control of the part of his body that was painful and preparing himself for death of his physical body made him less frightened and panicky. The control and preparation made him, therefore, more able to make peace with the family - so important in dying people. In fact, as we have noticed with

a number of people who are dying, he was able to give support to those around him who will suffer the loss. Coming to terms with the loss of his own physical body enabled him to integrate the remaining he had in this direction".

"Use of the tapes in a clinical setting has pointed out that their effect on reduction of stress and tense muscles is startling. As a matter of fact, it appears that not only muscles under voluntary control but also those under involuntary control (smooth muscles, such as the muscles of the bladder) may be relaxed with the Focus 10 exercise".

"Patients who are chronic feel very much out of control of the various symptoms they have. As with a number of the newer therapeutic techniques, giving them a sense of control has a "snowball" effect on the control of other symptoms and aspects of their interpersonal relationships. As they begin to achieve in other areas resulting from this "snowball" effect, each small success has a reinforcing effect".

"It seems that Focus 10 is the basic state which is essential to master before being able to proceed. Some of our patients have learned to induce the Focus 10 state to relax their bodies while they are actively engaged in work, and certainly to relax their bodies in between some highly stressful day-to-day working situations. Some patients are now able to program their sleep, so that they awake at certain times. A number of them with insomnia have found themselves sleeping very restfully".

"One patient had noticed that a very few minutes of sleep in Focus 10 seemed equivalent to him, in terms of restfulness, to many hours of sleep with his normal sleeping pattern. Sometimes problems can be created by this. For example, one patient noted that he has had periods of very high energy in which he finds he is creative, but which represents a change in his ordinary level of functioning to which other people take some time to adjust. He has noticed, for example, that he needs fewer hours of sleep at night and this is ready to start the day's work a great deal earlier than most other people".

"A number of patients who have regularly practiced with the tapes have found that they've become much more reflective, less physically active, and more satisfied with quieter sorts of hobbies and day-to-day activities. Becoming more inwardly turned is a characteristic of people who learn to utilize sources of gratification within their own heads rather than having to constantly turn to the outside world for gratification".

The Gateway Program - In 1975, the Institute was invited to the Esalen Center in Big Sur, California, to conduct a week-end workshop which would incorporate some of the methods and techniques it had developed. In that week-end, and the one that followed at Esalen in San Francisco, the Institute inadvertently opened a new aspect to its experimental procedure. As additional requests for similar sessions of exploration of consciousness came in, the decision was made to present other week-end programs in a semi-public manner, i.e., the selection of participants would be on the basis of sincerity of interest and inherent ability, with appropriate personality profiles.

Most important, such an on-going program would offer a far wider consensus base than ever possible through experimental work inside the Institute itself. Moreover, a feedback system could be employed, whereby the participants themselves, in their reporting of effects, would permit the evolution and modification of methods and techniques employed with each succeeding program.

With a few exceptions, the procedure has worked remarkably well. In four years, over 1,500 participants have been through this training and exploration in consciousness. Originally named the M-5000, it is now called the Gateway Program. The present Gateway Session is a distant cousin of the first, to say the least. Much of the primary method-material has been validated through surveys of Gateway Participants.

Here - Now - Downstream: In a broad view, those closely associated with the Institute are deeply pre-occupied with the implications inherent in the information gathered to date. Any introspection based upon extended application of such new tools as now seem available usually brings confusion. It is not the donkey starving equidistant between only two hay stacks - there look to be five, ten, one-hundred or more potentials, all equally important. The inevitable conclusion:

Assuming the validity of data gathered, that such methods and techniques are in fact tools for the alteration/amplification of consciousness, their very simplicity offers potential practical application in all facets of human existence, without exception.

From this overview, any wider diversity is beyond the current capability of the Institute. Therefore, the Institute is now open to contact and communication with all sectors of human endeavor, with the purpose of development and utilization of such tools wherever feasible and applicable. These include medicine, psychiatry, structured education, commercial products, music, entertainment, religion, not necessarily listed in order of importance. Such dissemination is expected to lead into areas not yet contemplated or conceived of by those associated with the Institute. Those at the Institute believe this position to be the only one that will lessen the possible mis-use of the system for non-constructive ends. The Institute welcomes any inquires from responsible individuals and organizations that might aid in the total process.

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